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IDEA-0263-68
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23 APR 1968

MEMORANDUM FOR THE RECORD

SUBJECT : U-2R Technical Meeting at LAC on 19 April 1968

I. Ejector Status

1. Kelly Johnson reviewed the flight test results of the two leading candidates for the final U-2R ejector configuration, i.e., the 13½ inch tailpipe extension and the one inch shortened tailpipe with 1.4% increased exit area with the forward bypass, both referenced to the bill of material configuration. The data indicated that both eliminated the ground swerving and the excessive noise and vibration and the altitude performance was the same for either version. However, the 13½ inch extension apparently resulted in 30-40°C cooler tailpipe temperatures than the other, and therefore, LAC proposed to finalize on that configuration. The forward bypass doors will also be included with the 13½ inch tailpipe extension as the standard configuration. One test flight with the 13½ inch tailpipe extension, together with the forward bypass, but with the approximately 1.4% increase in the tailpipe nozzle exit area will be conducted to confirm this final configuration and to attempt to verify the Pratt & Whitney position that the present tailpipe nozzle exit area is approximately 1.4% too small for an optimum design at altitude. This flight was scheduled for 19 April but was cancelled for other mechanical reasons. D/R&D will receive the pertinent technical data from flight #53 of aircraft No. 1 flown on 18 April and also similar data on the next flight of aircraft No. 1 (flight #54) with the 13½ inch tailpipe extension, the forward bypass and the 1.4% larger tailpipe exit area.

II. General

1. It was reported that although the maximum altitude performance was essentially as estimated, the maximum range performance would be degraded approximately 6% due to higher thrust specific fuel consumptions (TSFC) than originally estimated by Pratt & Whitney. Headquarters pointed out that some time ago during the early portion of the U-2R wind tunnel program, LAC advised that the drag coefficient at the

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maximum range lift coefficient was about 6% higher than estimated, and that the maximum range performance would therefore be lower than estimated. LAC denied the statement although an ASD memorandum is on file in ASD documenting the statement. In addition, ASD has subsequently compared the LAC estimated drag polar with that used for the most recent performance estimates and at the maximum range lift coefficient, the drag coefficient is 4% higher than was estimated.

2. Even with the modified beefed up horizontal tail section, there is still some flutter above 210 KEAS&M = .75 from 35,000 - 40,000 feet altitude. The new configuration has reduced the flutter by about 2/3 but more design effort must be accomplished to eliminate the flutter completely. Until this is accomplished, the U-2R is still restricted to a maximum 210 KEAS & .75 Mach between 35,000 - 40,000 feet altitude.

3. LAC will investigate the U-2R turn performance as a function of buffet intensity and altitude loss. Although the flight test results have verified the turn performance presented in the model specification, the purpose of the follow-on tests will be to determine the severity of buffet as the bank angle is increased such as one might expect during an operational evasive maneuver. The altitude loss will also be determined since this may be a desirable tactic.

4. The status of the Static Test Stretch Program ECP and the investigation of the optimum location for the System 20 was requested, but since both of these topics had been the subject of detailed discussions between LAC and ASD on the previous day, it was agreed that these items would be the subject of specific memos and/or briefings to appropriate headquarters personnel.

5. D/M will monitor very closely the pros and cons of using JP-5 fuel prior to any decision as to the normal use of this fuel.

25X1 6. [redacted] has requested that [redacted] conduct two flights, one low altitude and one high altitude, on each Detachment U-2R prior to acceptance. There were no objections to this request. 25X1

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7. As a reminder, the D/R&D again cited the desirability of aircraft No. 3 (or any other operational aircraft) being flown to demonstrate a complete mission profile including the range to reserve fuel and the altitude of [redacted] prior to descent. Kelly Johnson concurred. 25X1

8. Kelly Johnson announced that [redacted] was being phased into the position of overall coordinator and single focal point [redacted] both the U-2R and the U-2C. 25X1 25X1

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ASD/R&D/OSA

25X1 ASD/R&D/OSA/[redacted]sjs (23 April 68)
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